IDAHO DEPARTMENT OF FISH AND GAME

ANNUAL REPORT

HENRYS LAKE HATCHERY

1992

Prepared by:

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INTRODUCTION

Henrys Lake Hatchery is a license-funded resident station located in the northern Island Park area of Fremont County in east-central Idaho. The hatchery was established in 1924 as an egg-taking facility to off-set the potential loss of spawning habitat due to the construction of a dam at the lake outlet in 1922 (Idaho Department of Fish and Game 1924).

The hatchery continues to function as an egg-taking station and ships eyed eggs of cutthroat trout Oncorhynchus clarki, rainbow trout O. mykiss X cutthroat hybrids, and brook trout Salvelinus fontinalis to statewide hatcheries. Egg production for 1992 exceeded 3.75 million eyed eggs.

The current hatchery building was completed in 1949 and remodeled in 1989. The building contains ten double stacks of Heath incubator trays. Hatchery water is supplied via gravity flow from Sherwood Spring at 2 cfs for domestic and egg incubation use. Unused water flows into a small viewing pond, continues to Hatchery Creek and through a spawning facility, then finally to the lake through a 150-foot fish ladder.

The hatchery is staffed with 1 permanent hatchery superintendent and 11 months of allocated temporary time (8 months bio-aide and 3 months laborer).

HATCHERY IMPROVEMENTS

Hatchery improvements included the purchase of a 1993 Polaris Indy 500 widetrack snowmobile with Fisheries funds. This machine will greatly facilitate wintertime hatchery duties, including riparian electric fence maintenance, water quality/dissolved oxygen monitoring across the lake, assessing wildlife depredation complaints, and placing aeration equipment around the lake.

With the appropriation of necessary funds, equipment was purchased for the installation of a lake Helixing system that will aid oxygen supplementation efforts during critical periods of low oxygen levels. To this end, a wooden building with an 8-inch concrete foundation was constructed near the lakeshore to house two Helixer blowers. Pipe was buried underground from the shed to the high water mark to protect the blower lines running to each Helixer. Final installation of this system is expected in 1993. Additional oxygen supplementation equipment acquired in 1992 include 10 Power House portable aerators and 12 Aeromix Aquaculture Tornado aerators with monies obtained from Bureau of Reclamation drought relief funds.

The upstairs of the crew cabin has been refurbished to better accommodate temporary crew and visiting staff. Additionally, the spawn shed was rewired to comply with State codes. Both residence 1 and the hatchery building received exterior paint, and the interior of residence 1 was repainted. Hatchery building doors and windows were made operational this summer. Software for the computer system was installed, and proper documentation was received for hatchery software. Furthermore, a new water heater was installed in residence 1. A new kitchen light fixture and a stovepipe were also installed.

FISH HEALTH

Broodstock disease inspections were conducted on brood year 1992 cutthroat, hybrid and brook trout (Table 1). Ovarian samples analyzed by the Eagle Fish Health Laboratory revealed generally low or no prevalence of pathogens for all

lots tested. One lot of cutthroat ovarian fluid tested positive (1 of 10) for bacterial Coldwater Disease pathogens. Tissue sampling tested positive (56 of 60; 53 low, 3 moderate) for Bacterial Kidney Disease (BKD) agents using ELISA methods.

Brook trout ovarian fluid was also tested for BKD pathogens employing ELISA testing. Of 52 samples tested, 27 yielded low-positive results. Results of hybrid trout samples tested for various disease agents concluded either negative or unknown.

FISH SPAWNING

The fish ladder was placed in operation February 22, 1992, and spawning began February 27th. The 1992 run consisted of 7,809 cutthroat (6,289 in 1991) and 2,216 hybrid (435 in 1991), an increase of 24% and 409%, respectively, over 1991 figures (Figures 1 and 2). The March 1991 winterkill is suspected as the primary cause of low spawning run numbers for that year.

Average total length of male and female cutthroat represented in the 1992 spawning run was 482 mm (Figure 3). Hybrid trout averaged 519 mm in total length (Figure 4).

Eye-up was poor in 1992 due to soft-shelled eggs, and female fish entering the ladder overripe. Cutthroat eggs totaled 4,319,370 from 1,552 females, producing an average fecundity of 2,783. Green eggs yielded 1,697,866 eyed eggs for an eye-up survival of 39.3% (Table 2).

A total of 2,709,800 cutthroat x rainbow eggs were collected from 946 females for an average fecundity of 2,864. Eyed hybrid eggs totaled 1,738,400 for an eye-up survival of 64.2%.

Brook trout eggs totaled 510,999 taken from 203 females for an average fecundity of 2,353. Resultant eye-up of 314,689 eggs produced an eye-up percentage of 61.6% (Table 3). Spawning of brook trout began October 22 and continued through October 30. Low lake water level necessitated the use of the trap net at the mouth of Hatchery Creek. Average total length of brook trout males and females (423 mm and 421 mm, respectively) increased from the 1991 measurements of 322 mm and 415 mm, respectively (Figure 5).

PUBLIC RELATIONS

Two television interviews were conducted in January with local stations regarding oxygen levels and the potential for a winterkill. The hatchery assisted the Henrys Lake Foundation with willow cutting along upper Duck Creek. The willows were planted a week later along a lower section of Duck Creek in a stream walk program with Madison High School students. Newsletter articles were written for the Henrys Lake Foundation, and a fishing article was submitted for printing in the Idaho Falls Post Register in May. Two additional television interviews were conducted in June concerning the long term effects of the drawdown of Henrys Lake. Tours were conducted throughout the summer. Presentations were made at the Henrys Lake Foundation annual meeting and the Island Park Sportsmen's election meeting. A presentation on lake ecology was made to students at the St. Anthony Youth Services Center. Beginning in July, a monthly article was written for the Yellowstone Gateway Post. An interpretive display was developed for the parking lot, and Henrys Lake fish were hauled to Boise for display at the nature center.

SPECIAL PROJECTS

A dissolved oxygen and oxygen depletion rate study was conducted during January. From data collected at various sample sites on the lake, an oxygen depletion rate was calculated in 1992 for comparison with other years. This information was used to organize equipment and personnel efficiently prior to hypoxic conditions. Aerators were installed at the mouth of Hatchery Creek in mid-January and remained in service through April 17 when ice cover left the lake.

Hatchery personnel assisted the Idaho Department of Environmental Quality and its contractors with lake and stream sampling. E.G. and G. environmental personnel assisted with production of a bathymetric map of Henrys lake.

Gillnetting was conducted by hatchery personnel the first week of May. Kidney samples were collected and sent to the Eagle Fish Health Lab for Bacterial Kidney Disease (BKD) analysis. Otolith samples were also obtained through gillnetting for use in age determination of Henrys Lake fish.

Riparian fencing totaled nearly 4.5 miles in 1992. Areas fenced included the southern lake shoreline from Bureau of Land Management (BLM) property on the west to Hope creek/BLM property on the east. Lower Duck Creek and a portion of Kelly Spring were also protected with fence.

Hatchery personnel assisted the Henrys Lake Foundation with trenching of Targhee and Duck creeks at their mouths to facilitate fall spawning brook trout. Henrys Lake was drawn down nearly 7 feet (the lowest level since 1938) for calls made on irrigation water in the face of the sixth year of drought.

LITERATURE CITED

Idaho Department of Fish and Game. 1924. Fish and Game Warden. 10th Biennial Report. 10:113-114.

Table 1. Pathology test results, Henrys Lake Hatchery, 1992.

Species	Sample Date	VH	VP	VE	BK	BF	BR	BC	PX	PW	PC	PI
RBT (Hybrid)	2/27	-	-									
RBT (Hybrid)	3/3	-	-									
Kamloops (Ennis/HL)	3/6	-	-									
cutthroat(C3)	3/10	-	-									
cutthroat(C3)	3/18	-	-		+	-	-	+		-	-	
cutt X Kam	3/13	-	-									
cutthroat(C3)	3/20	-	-									
cutthroat(C3)	3/23	-	-									
cutthroat(C3)	3/30	-	-									
cutthroat(C3)	4/2	-	-									
cutthroat(C3)	4/6	-	-									
cutthroat(C3)	4/9	-	-									
cutt X Kam	4/13	-	-									
cutthroat(C3)	4/16	-	-									
cutthroat(C3)	4/23	-	-									
cutthroat(C3)	5/5	-	-		+							
cutthroat(C3)	5/7	-	-									
brook trout	10/22	-	-	-								
brook trout	10/27											
brook trout	10/30	-	-	-	+ (low +)							

Legend:

VH = IHNV, infectious hematopoietic necrosis virus
VP = IPNV, infectious pancreatic necrosis virus
VE = FIBS, erythrocytic inclusion body syndrome virus
BK = bacterial kidney disease
BF = bacterial furunculosis
BR = enteric red mouth bacterium
BC = bacterial cold water disease
PX = PKX, agent of PKD, proliferative kidney disease
PW = whirling disease agent
PC = Ceratomyxa shasta, agent of ceratomyxosis
PI = Infestation by Ichthyophthirius multifilis
blank = not tested for
+ = positive
- = negative

Table 2. Egg summary, Henrys Lake Hatchery, 1992.

Species	Green eggs	Eyed Eggs	Percent eye-up
Cutthroat	4,319,370	1,697,866	39.
Hybrid trout	2,709,800	1,738,400	64.
Brook trout	510,999	314,689	61.
TOTAL	7,540,169	3,750,955	49.

Table 3. Eyed eggs shipped from Henrys Lake Hatchery, 1992.

Species	Eyed eggs shipped	Receiving Hatchery
Brook trout	264,689	Ashton
Brook trout	50,000	Clark Fork
Subtotal	314,689	
Hybrid trout	508,400	Mackay
Hybrid trout	1,010,000	Hagerman
Hybrid trout	5,000	Ashton
Hybrid trout	210,000	Nampa
Hybrid trout	5,000	Sandpoint
Subtotal	1,738,400	
Cutthroat trout	1,329,866	Mackay
Cutthroat trout	50,000	Ashton
Cutthroat trout	308,062	Hagerman
Subtotal	1,697,866	
TOTAL	3,750,955	

CUTTHROAT TROUT RUN TIMING
HENRYS LAKE HATCHERY BROODYEAR 1992

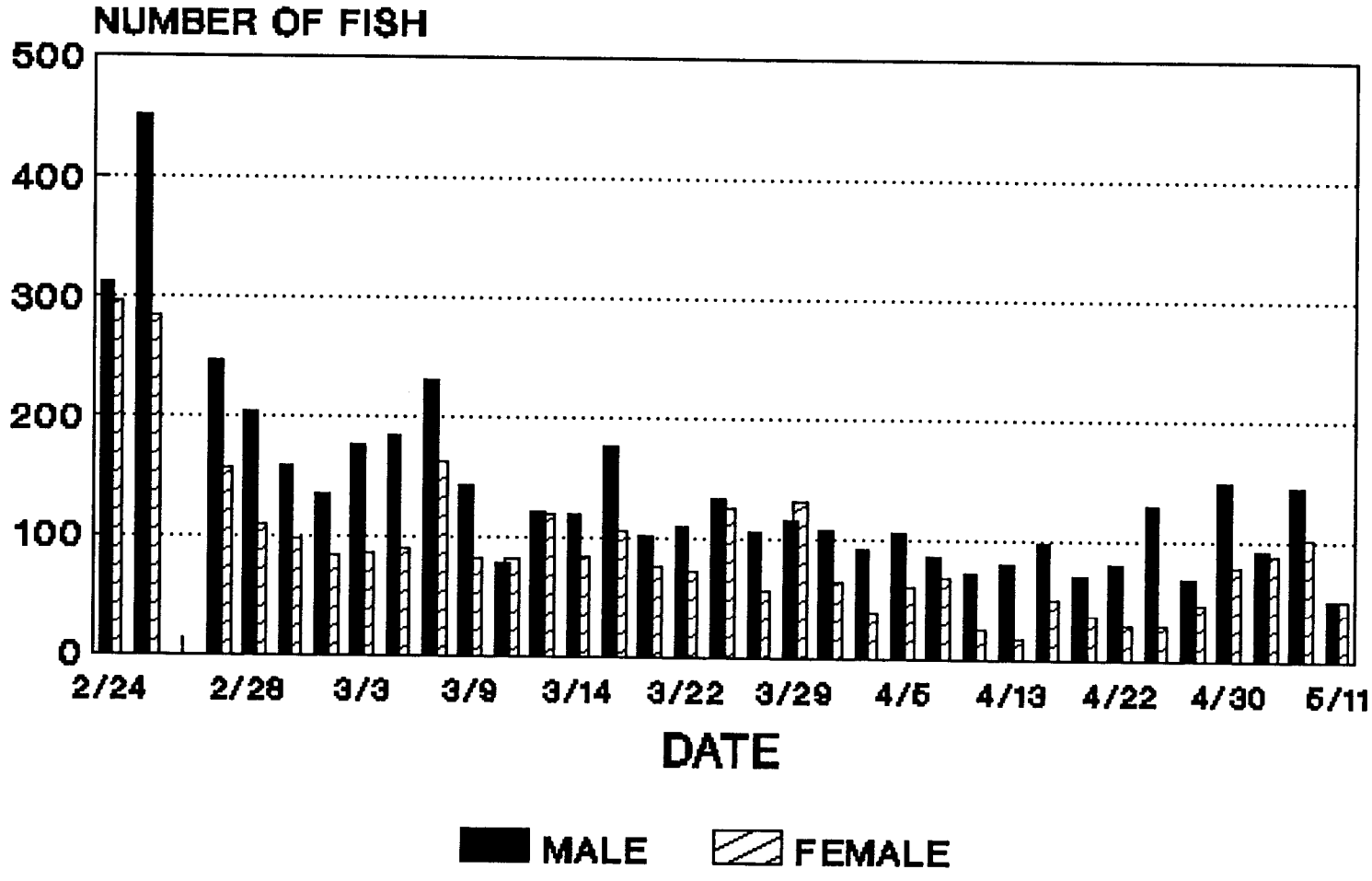

FIGURE 1. CUTTHROAT TROUT RUN TIMING

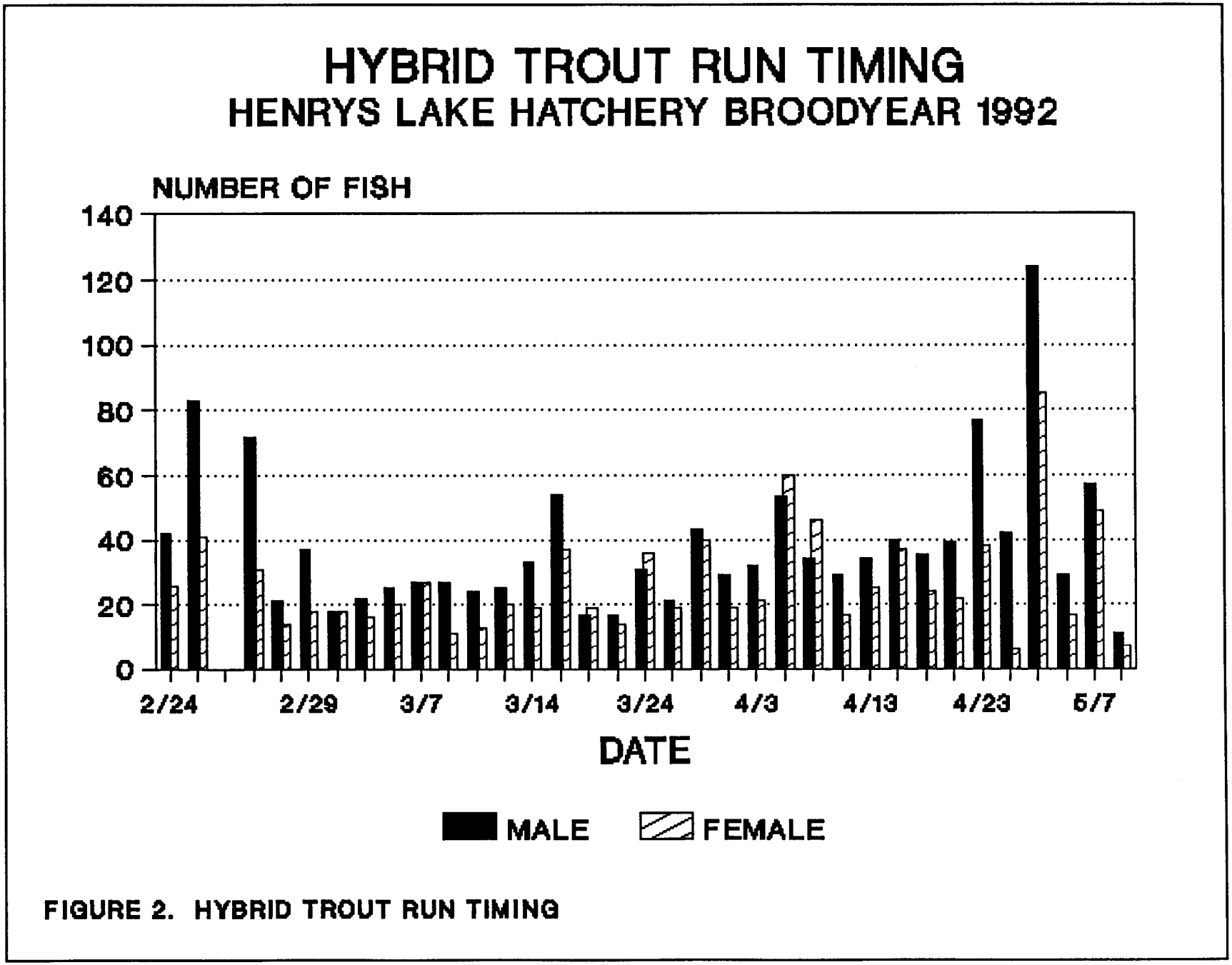

FIGURE 2. HYBRID TROUT RUN TIMING

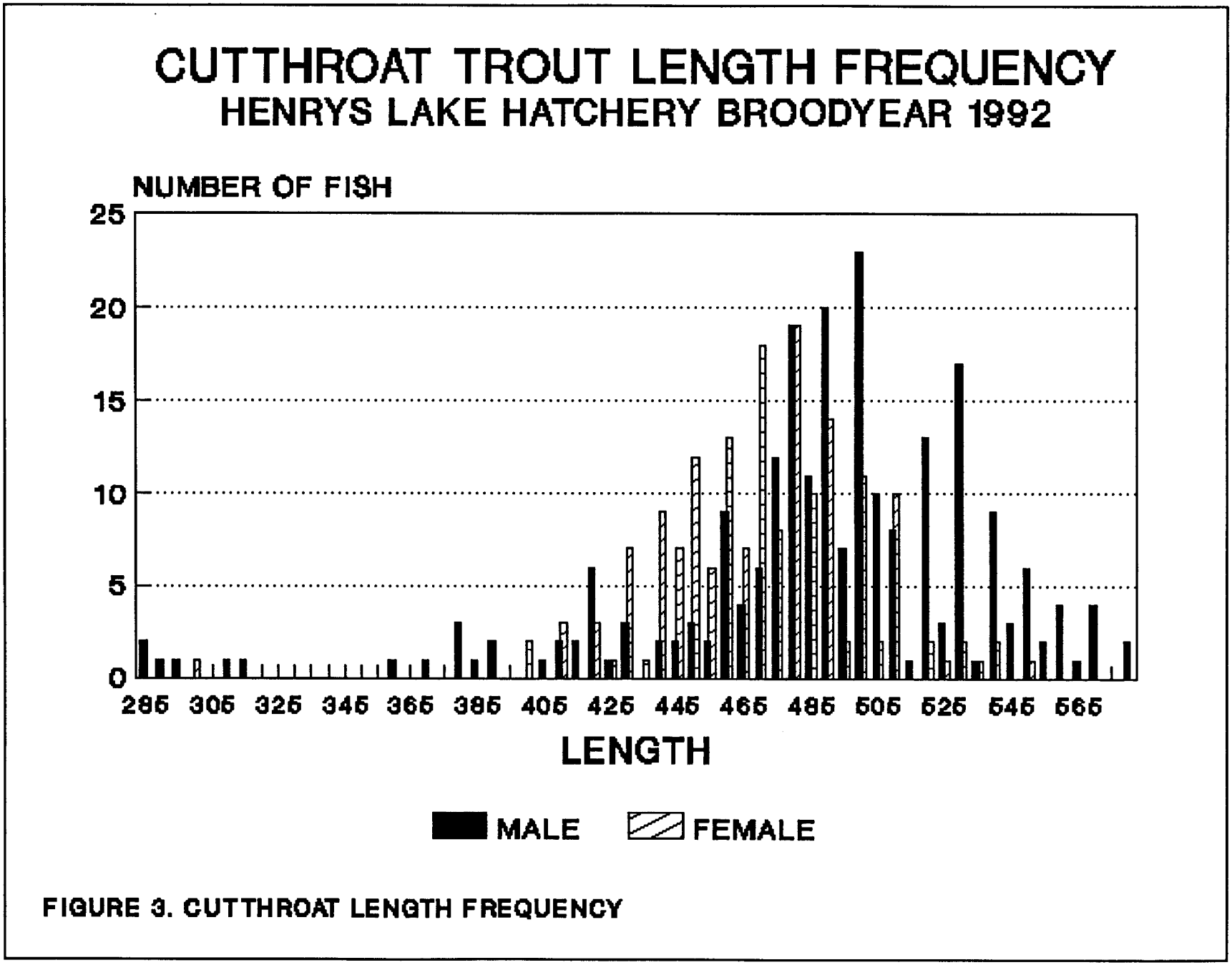

FIGURE 3. CUTTHROAT LENGTH FREQUENCY

HYBRID TROUT LENGTH FREQUENCY

HENRYS LAKE HATCHERY BROODYEAR 1992

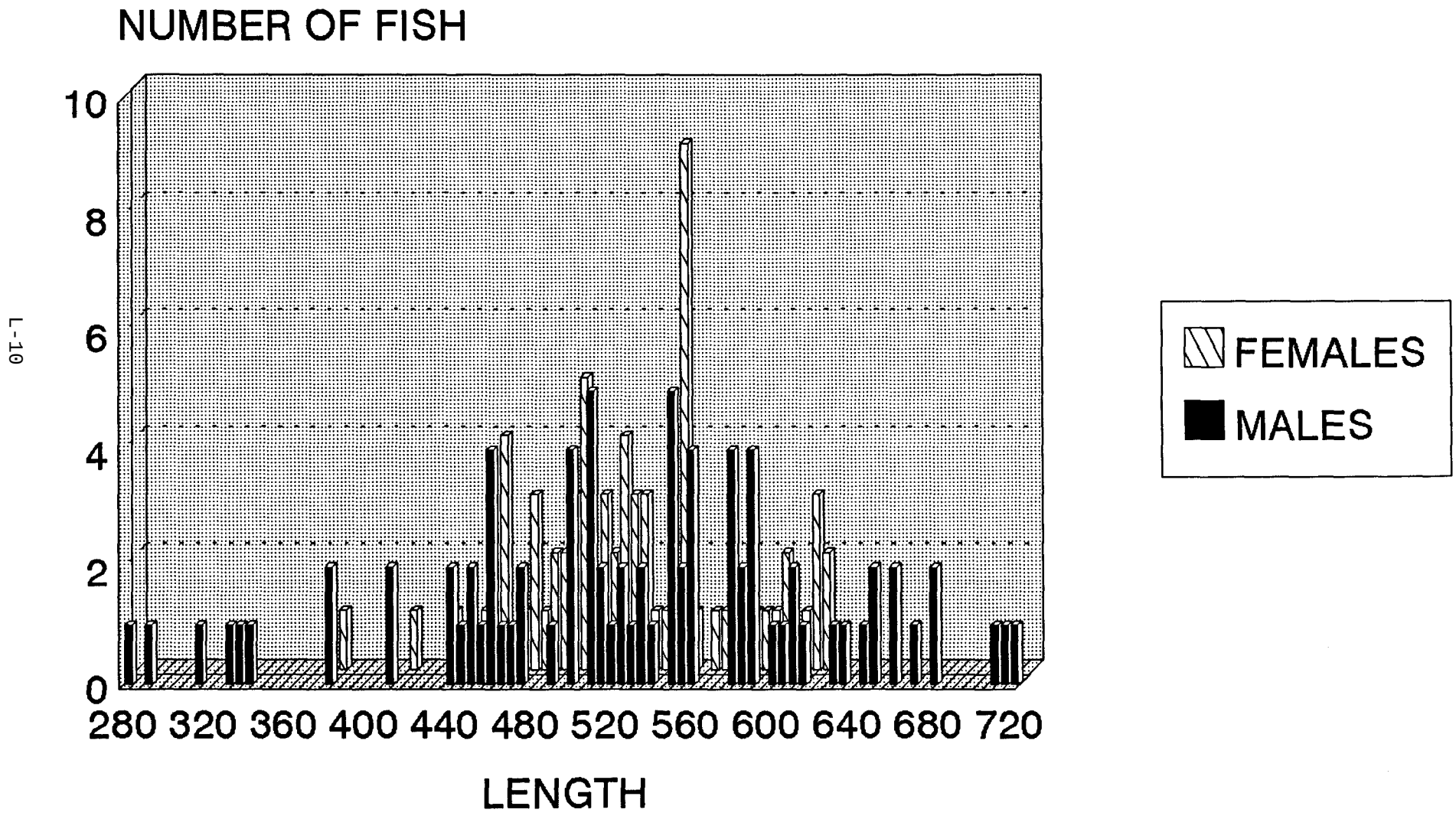

FIGURE 4. HYBRID TROUT LENGTH FREQUENCY

BROOK TROUT LENGTH FREQUENCY

HENRYS LAKE HATCHERY BROODYEAR 1992

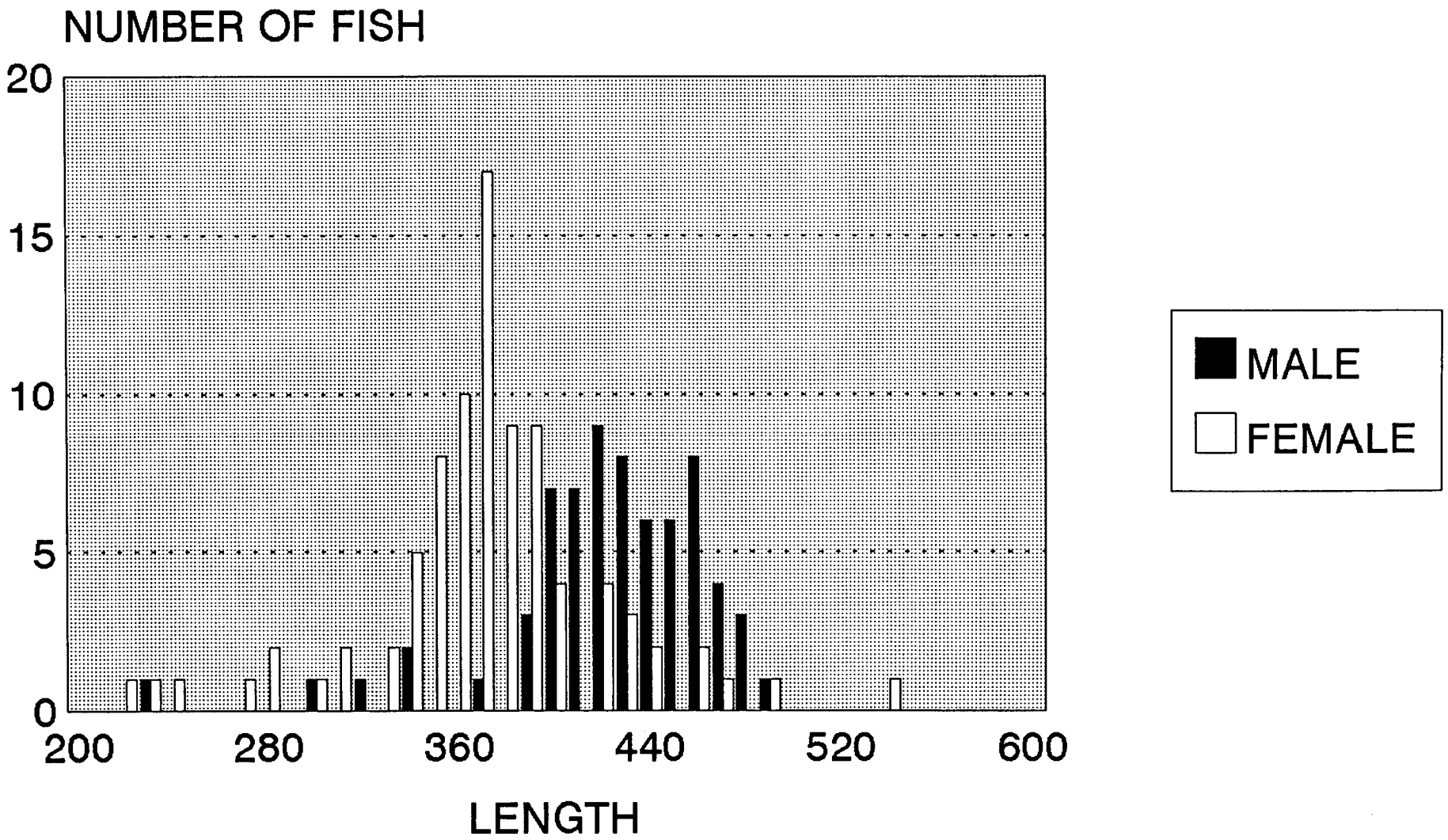

FIGURE 5. BROOK TROUT LENGTH FREQUENCY

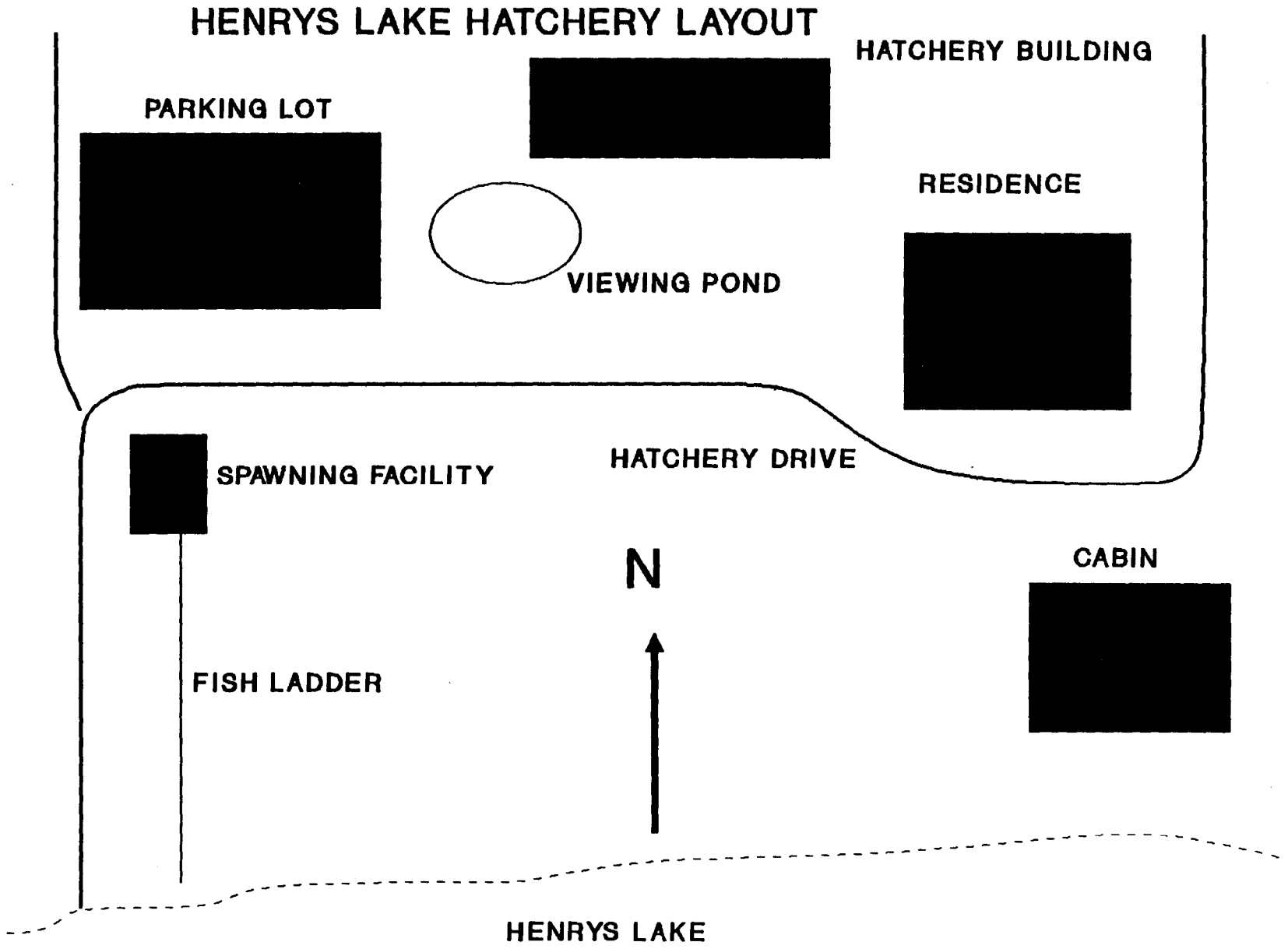

Figure 1. Hatchery layout.